

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To:

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NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing
(day/month/year)

13.04.2004

Applicant's or agent's file reference
CO0072PCT/Kr/K

IMPORTANT NOTIFICATION

International application No.
PCT/NL 03/00016

International filing date (day/month/year)
10.01.2003

Priority date (day/month/year)
11.01.2002

Applicant
CORUS TECHNOLOGY BV et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international
preliminary examining authority:



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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference CO0072PCT/KrK	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA416)	
International application No. PCT/NL 03/00016	International filing date (day/month/year) 10.01.2003	Priority date (day/month/year) 11.01.2002
International Patent Classification (IPC) or both national classification and IPC B29C45/14, B29C45/14		
Applicant CORUS TECHNOLOGY BV et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 4 sheets.

3. This report contains indications relating to the following items:

I	<input checked="" type="checkbox"/>	Basis of the opinion
II	<input type="checkbox"/>	Priority
III	<input type="checkbox"/>	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
IV	<input type="checkbox"/>	Lack of unity of invention
V	<input checked="" type="checkbox"/>	Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
VI	<input type="checkbox"/>	Certain documents cited
VII	<input type="checkbox"/>	Certain defects in the international application
VIII	<input type="checkbox"/>	Certain observations on the international application

Date of submission of the demand 17.06.2003	Date of completion of this report 13.04.2004
Name and mailing address of the international preliminary examining authority: <div style="display: flex; align-items: center;"> <div> European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 </div> </div>	Authorized Officer Foulger, C Telephone No. +49 89 2399-2944



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/NL 03/00016**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-13 as originally filed

Claims, Numbers

1-28 received on 27.01.2004 with letter of 27.01.2004

Drawings, Sheets

1/6-6/6 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/NL 03/00016**

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	4-12,14-17,19-22,24,26-28
	No: Claims	1-3,13,18,23,25
Inventive step (IS)	Yes: Claims	
	No: Claims	1-28
Industrial applicability (IA)	Yes: Claims	1-28
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V : Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability.

- 1.1. Document JP 05329881 (D1) discloses (applying the wording of present claim 1) a method for producing a composite product (line 2) comprising a plastic body (line 4) and a covering layer formed from a metal blank (line 3) which, at least over part of its surface, is stuck to the plastic body (line 2), wherein
- the metal blank (figure and lines 6 and 10) is placed in a die (figure, reference signs 6, 7 and 10), which comprises a blank holder (lines 10 and 11, reference signs 6 and 13), a mandrel (line 10, reference sign 10) which can move with respect to the blank holder and a support die (line 11, reference sign 6),
 - the die is closed, so that the support die and the mandrel are located on either side of the metal blank, and the metal blank is supported in the vicinity of its edge with the aid of the blank holder (lines 8 to 11),
 - a liquid plastic is injected into the die, the liquid plastic being brought into contact with the preformed metal blank (lines 12 and 13),
 - the liquid plastic being converted into a solid plastic body which is stuck to the preformed metal blank in order to produce a composite product (lines 1 and 2),
 - the composite product is removed from the die.
- wherein the liquid plastic is injected into the die under pressure, during which process the metal blank is shaped (figures 3 and 4: injection of the resin and shaping of the blank are simultaneous).

- 1.2. Consequently, the subject-matter of claim 1 is not new (Article 33(2) PCT) over D1.

- 1.3. The subject-matter of claim 1 is also not new compared to the method according to JP 5329882 (see figures 4 and 5) which discloses a method of fabrication similar to the method according to D1.

The same applies to JP 81156023 (figure 4) and EP 0186 015.

- 2.1. D1 is also the closest prior art document referring to the subject-matter of independent device claim 18.

The device according to D1 comprises a die with a blank holder, means for closing the die, a support die and a mandrel which can move in relative terms along the blank

holder toward the support die, and means for injecting a liquid plastic into the die, in such a manner that the liquid plastic comes into contact with the metal blank, wherein the support die is provided with an uneven support die surface in order to interact with the composite product.

2.2. The subject-matter of device claim 18 is also not new (Article 33(2) PCT) over D1.

3. Additionally, the subject-matter of dependent product claim 25 is not new over D1 which discloses a composite product produced by the method as claimed in claim 1 and the device as claimed in claim 18, wherein the blank has a thickness of 0,03 to 0,6 mm.

4. The subject-matter of dependent method claims 2 to 17, dependent device claims 19 to 24 and dependent product claims 26 to 28 does not contain any features which, in combination with the features of independent claims 1 and 18 to which they refer, meet the requirements of the PCT in respect of novelty (Article 33(2) PCT) and inventive step (Article 33(3) PCT), the reasons being as follows:

4.1. The additional features of dependent method claims 2, 3 (see lines 11 to 14) and 13 (line 8) and dependent device claim 23 are known from D1 (see abstract and figure 2).

4.2. The features of dependent claims 7 and 21 are disclosed in DE 197 33 598 (D2; see figure 2).
The same applies to dependent claims 8 and 22 (see D2, figure 3).
Additionally, a metal blank hold in a grip closed by spring force (dependent claims 9 to 11 and 24) is disclosed in JP 8156023 (D3; see figures 4 and 6).

The additional features of dependent claim 16 seem to be disclosed in US 3,651,191 (D4; see claim 1 and figures 6 and 7).

Moreover, document US 3,184,086 (D5) discloses the additional product features of dependent product claims 26 to 28.

Additionally, the additional features in dependent claims 4, 5, 8, 12, 14, 15, 17, 19, 24 are considered to be part of the normal design process for the skilled person.

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/NL 03/00016

5. The subject-matter of claims 1 to 28 is industrially applicable in the technical field of composite materials (Article 33(4) PCT).

27. JAN. 2004 13:21

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13/500796
0718 PCT/PTO 02 JUL 2004**Amended CLAIMS for International application No. PCT/NL03/00016**

1. A method for producing a composite product comprising a plastic body and a covering layer formed from a metal blank which at least over part of its surface is stuck to the plastic body, wherein
- the metal blank (5) is placed in a die, which die comprises a blank holder (24), a mandrel (22) which can move with respect to the blank holder, and a support die (21),
 - the die is closed, so that the support die (21) and the mandrel (22) are located on either side of the metal blank (5), and the metal blank (5) is supported in the vicinity of its edge with the aid of the blank holder (24),
 - a liquid plastic (10) is injected into the die, the liquid plastic (10) being brought into contact with the preformed metal blank,
 - the liquid plastic (10) being converted into a solid plastic body which is stuck to the preformed metal blank in order to produce the composite product,
 - the composite product is removed from the die,
- wherein the liquid plastic is injected into the die under pressure, during which process the metal blank is shaped.
2. The method as claimed in claim 1, in which the metal blank is supported in the blank holder in the vicinity of its edge, and in which the metal blank, after the die has been closed and before the liquid plastic is injected, is mechanically preformed with the aid of the mandrel, the mandrel being moved in relative motion along the blank holder toward the support die.
3. The method as claimed in claim 1 or 2, in which the liquid plastic is injected into the die under pressure, the entire available space being filled with the liquid plastic.
4. The method as claimed in one of the preceding claims, in which the pressure is at least 200 bar and at most 4000 bar, preferably at least 400 bar, more preferably at least 800 bar and even more preferably at least 1200 bar.
5. The method as claimed in one of the preceding claims, in which the liquid plastic is injected into the die at a liquid plastic flow rate of at least 10 cm³/s, preferably of at least 20 cm³/s.

6. The method as claimed in one of the preceding claims, in which during the preforming of the metal blank, the metal blank is clamped between the mandrel and the support die, and the support die is moved together with the mandrel.
- 5 7. The method as claimed in one of the preceding claims, in which the mandrel and the support die are moved apart before or during the injection of the liquid plastic.
- 10 8. The method as claimed in one of the preceding claims, in which during the injection of the liquid plastic the latter is also brought into contact with an end edge of the preformed metal blank.
- 15 9. The method as claimed in one of the preceding claims, in which the metal blank, at least during preforming, is held in the grip, which is closed by spring force, of a holding-down clamp which is present in the blank holder.
- 20 10. The method as claimed in claims 1 and 9, wherein the metal blank, at least during the injection of the liquid plastic, is held in the grip, which is closed by spring force, of the holding-down clamp.
- 25 11. The method as claimed in claim 9 or 10, wherein the spring force is selected to be such that the metal blank is pulled out of the grip of the holding-down clamp and in the process is subject to a certain resistance.
- 30 12. The method as claimed in one of the preceding claims, in which, after the liquid plastic has been injected into the die, additional material is injected into the die in at least one after-molding step.
- 35 13. The method as claimed in one of the preceding claims, in which the metal blank is selected from a group of types of metal consisting of steel, stainless steel, galvanized steel, tin-plated steel, chrome-plated steel, copper-plated steel, Ni-coated steel, aluminum, alloys based on aluminum, copper, zinc, nickel, brass, bronze, silver, gold, titanium.
14. The method as claimed in one of the preceding claims, in which the plastic is selected from a group of types of plastic consisting of PP, PET, PE, ABS, PMMA, SAN, PC, PA, PU, PUR, SAN and copolymers thereof, if desired filled

with a pulverulent filler, such as ceramic and/or metallic particles, or filled with foaming agents.

- 5 15. The method as claimed in one of the preceding claims, in which the metal blank is provided with a plastic coating layer which can preferably be fused to the injected plastic, such as PET, PP or holographic material.
- 10 16. The method as claimed in one of the preceding claims, in which the metal blank is cut under the influence of the pressure with which the liquid plastic is forced into the die.
- 15 17. The method as claimed in one of the preceding claims, in which the metal blank, before it is placed into the die, is provided with means, such as a layer of wax, to ensure that the plastic body can only stick to the blank over part of the blank.
- 20 18. A device for producing a composite product which comprises a plastic body and a covering layer formed from a metal blank, which covering layer, at least over part of its surface, is stuck to the plastic body, which device comprises a die, which die is provided with a blank holder (24) for the metal blank (5) to be placed and supported in close to its edge, means for closing the die, a support die and a mandrel (22) which can move in relative terms along the blank holder toward the support die, and means for injecting a liquid plastic (10) into the die, in such a manner that the liquid plastic comes into contact with the metal blank, wherein the support die is provided with an uneven support-die surface in order to interact with the composite product to produce a defined shape on the composite product.
- 25 19. The device as claimed in claim 18, characterized in that the device comprises means for melting the plastic before injecting the plastic in liquid form into the die, and means for solidifying the liquid plastic in contact with the metal blank.
- 30 20. The device as claimed in claim 18 or 19, characterized in that the support die can move with the mandrel, and the metal blank can be clamped between the support die and the mandrel.
- 35 21. The device as claimed in one of claims 18 to 20, characterized in that the support die and the mandrel, during operating of the means for injecting the plastic into the die, can be moved away from one another.

22. The device as claimed in one of claims 18 to 21, characterized in that the blank holder comprises a holding-down clamp which has a grip which can be closed by spring force in order to hold the metal blank.
- 5 23. The device as claimed in one of claims 18 to 22, characterized in that the mandrel is provided with an uneven mandrel surface in order to interact with the composite product to produce a defined shape on the composite product.
- 10 24. The device as claimed in one of claims 18 to 23 for carrying out the method as claimed in claim 16, characterized in that the support die is provided with a recessed section with a cutting edge.
- 15 25. A composite product produced with the aid of the method as claimed in one of claims 1 to 17, and/or the device as claimed in one of claims 18 to 24, characterized in that the blank has a thickness of between 0.01 mm and 3.0 mm, preferably between 0.03 mm and 1.0 mm, more preferably between 0.05 mm and 0.5 mm.
- 20 26. A composite product produced with the aid of the method as claimed in claim 17, characterized in that the plastic body is only stuck to the metal blank over part of the blank, in order to form an element which can move with respect to the blank, such as a securing element, a resilient element, a click-fit element, a closure element or a pivoting element.
- 25 27. A composite product produced with the aid of the method as claimed in claim 16, characterized in that a section of the metal blank is cut out and is connected to the remainder of the blank by means of a thickened plastic portion.
- 30 28. The composite product as claimed in claim 25, 26 or 27, characterized in that the product is a component for a consumer packaging product, such as a cover, cap or closure, an (electronics) housing, a bodywork component, an interior component for the automotive industry, a catering product, or a computer accessory.